

WHAT IS CLAIMED IS:

- 5 1. Apparatus for removing water from compressor inlet air comprising:
- a compressor;
- an air inlet duct to the compressor;
- a drain connecting to the inside of the duct; and
- 10 means for lowering pressure in the drain to a pressure less than air pressure in the duct adjacent to the drain.
2. Apparatus according to claim 1 wherein the drain is in an approximately horizontal portion of the air duct.
- 15 3. Apparatus according to claim 1 further comprising a dam extending into air flow through the duct for directing water toward the drain.
4. Apparatus according to claim 3 wherein the dam comprises
- 20 a strip with a perforated tube in the strip.
5. Apparatus according to claim 3 wherein the dam comprises a strip extending diagonally across air flow through the duct and wherein a drain is near the downstream end of the strip.
- 25 6. Apparatus according to claim 1 wherein the drain is on a non-horizontal portion of the air duct, and further comprising a dam extending into air flow through the duct for directing water toward the drain.
- 30 7. Apparatus according to claim 6 wherein the dam comprises a strip with a perforated tube in the strip.
8. Apparatus according to claim 6 wherein the dam comprises a strip extending diagonally across the duct and wherein a
- 35 drain is near the lower end of the strip.

5 9. Apparatus according to claim 1 wherein the drain is on a floor of the duct and further comprising a perforated plate or screen overlying the floor.

10. Apparatus according to claim 9 wherein the drain is located on a compressor inlet cone.

10 11. Apparatus according to claim 10 wherein the drain comprises a dam around at least a portion of the cone and a perforated tube adjacent to the dam.

15 12. Apparatus according to claim 10 wherein the drain comprises a hollow cone and a perforated or porous surface on the cone.

13. Apparatus for removing water from compressor inlet air comprising:

20 a compressor;
 an air inlet duct to the compressor;
 a drain connecting to the inside of the duct; and
 a suction device for air and/or water connected to the drain.

25 14. Apparatus according to claim 13 further comprising a dam extending into air flow through the duct and a perforated tube in the strip.

30 15. Apparatus according to claim 13 wherein the drain comprises a perforated tube extending across a face of the duct.

16. Apparatus according to claim 15 further comprising a dam diverting water to the drain tube.

35 17. Apparatus according to claim 15 wherein the drain comprises a perforated strut in the duct.

18. Apparatus according to claim 10 wherein the drain is on a non-horizontal portion of the air duct, and further comprising
5 a dam extending into air flow through the duct for directing water toward the drain.

19. Apparatus according to claim 18 wherein the dam comprises a strip with a perforated tube in the strip.

10 20. Apparatus according to claim 18 wherein the dam comprises a strip extending diagonally across the duct and wherein a drain is near the lower end of the strip.

15 21. Apparatus according to claim 13 wherein the drain is on a floor of the duct and further comprising a perforated plate or screen overlying the floor.

22. Apparatus according to claim 13 wherein the drain is located on a compressor inlet cone.

20 23. Apparatus according to claim 13 wherein the drain comprises a dam around at least a portion of the cone and a perforated tube adjacent to the dam.

25 24. Apparatus according to claim 13 wherein the drain comprises a hollow cone and a perforated or porous surface on the cone.

30 25. Apparatus according to claim 13 further comprising an inlet cone for the compressor and wherein the drain is on a surface of the inlet cone.

26. Apparatus according the claim 25 wherein the inlet cone is hollow and the drain comprises a porous or perforated surface on the inlet cone.

35 27. Apparatus for removing water from compressor inlet air

comprising:

 a compressor;

5 hollow inlet air guide vanes for the compressor, wherein
the guide vanes have a perforated or porous surface; and

 a suction device for water and/or air connected to the
hollow interior of the guide vanes.

10 28. Apparatus according to claim 27 wherein only a downstream
portion of such a guide vane is porous or perforated.

29. Apparatus for removing water from compressor inlet air
comprising:

 a compressor;

15 a hollow inlet cone for the compressor, wherein the inlet
cone has a perforated or porous surface; and

 a suction device for water and/or air connected to the
hollow interior of the inlet cone.

20 30. Apparatus according to claim 29 wherein only a downstream
portion of the inlet cone is porous or perforated.

31. A method of removing water from compressor inlet air
comprising:

25 diverting water on a wall inside the duct to a drain; and
 sucking water from the drain with a pressure less than
air pressure in the duct adjacent to the drain.

30 32. A method according to claim 31 wherein the drain is on a
floor of the duct and further comprising shielding at least a
portion of the floor of the duct with a perforated sheet or
screen.

35 33. A method according to claim 31 wherein diverting
comprises placing a dam across a portion of the air flow
through the duct and adjacent to the drain.

34. A method according to claim 33 comprising sucking water from along at least a portion of the length of the dam.

5 35. A method according to claim 31 comprising sucking water through a perforated tube.

36. A method of removing water from compressor inlet air comprising:
10 sucking water from a hollow structure upstream from the compressor with a pressure less than air pressure adjacent to the suction inlet.

37. A method according to claim 36 comprising sucking water from a hollow strut.
15

38. A method according to claim 36 comprising sucking water from a hollow compressor inlet cone.

20 39. A method according to claim 36 comprising sucking water from a hollow inlet guide vane.

25

30

35